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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C.
1940 DUKE STREET
ALEXANDRIA, VA 22314

EXAMINER	
BERNSHTEYN, MICHAEL	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

Office Action Summary	Application No.	Applicant(s)	
	10/510,371	PETEREIT ET AL.	
	Examiner	Art Unit	
	MICHAEL M. BERNSHTEYN	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 June 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *13-18* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12 and 19-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-26* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action follows a response filed on June 19, 2008. No claims have amended or cancelled; claims 21-26 have been added.

2. Applicant's arguments with respect to claims 1-12, 19 and 20 have been considered but are not persuasive.

3. Claims 1-12 and 19-26 are active.

Claim Rejections - 35 USC § 103

4. The test of this section of Title 35 U.S.C. not included in this action can be found in a prior Office Action.

5. Claims 1-12, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Haddleton et al. (U. S. Patent 5,804,632) in view of Rehmer et. Al (U. S. Patent 6,225,401), for the rationale recited in paragraph 8 of Office action dated September 26, 2006, and comments below.

6. Claims 21 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Haddleton et al. (U. S. Patent 5,804,632) in view of Rehmer et. Al (U. S. Patent 6,225,401).

With regard to the limitations of instant claims 21 and 24, Haddleton discloses a production of an aqueous polymer emulsion comprises a low molecular weight polymer containing acid-functional groups made by using a free-radical polymerization process which employs a free-radical initiator and, for the purpose of controlling molecular weight, a transition metal chelate complex, wherein said low molecular weight polymer

has a number average **molecular weight within the range of from 500 to 50,000** (abstract).

Typically the acid-bearing comonomers are olefinically unsaturated carboxyl-functional monomers such as mono carboxyl-functional acrylic monomers and olefinically unsaturated dicarboxyl bearing monomers; examples include **acrylic acid, methacrylic acid**, itaconic acid, maleic acid and fumaric acid (col. 5, lines 41-46). Non-acid functional monomer(s), which may be copolymerized with the acid monomer(s) include alkylmethacrylates and styrenes, and alkylacrylates can also be used, particularly if included as **comonomers** at low levels. Typically, the acid functional low molecular weight polymer is derived from a monomer system which contains **1-60 weight % of acid comonomer(s)**, and correspondingly **99-40 weight % of non acid functional comonomer(s)** (col. 6, lines 17-23). The low molecular weight polymer should have a number average molecular weight within the range of from **500-50,000**, preferably 700-20,000 and particularly 1,000-10,000, which is within the claimed range (col. 7, lines 8-10).

Haddleton discloses an aqueous emulsion polymerization process to form an aqueous emulsion of a hydrophobic polymer from at least one olefinically unsaturated monomer, wherein the low molecular weight polymer is introduced to the aqueous medium of said emulsion polymerization process before the start of and/or during said emulsion polymerization process and becomes dissolved or dispersed in said aqueous medium (abstract). The polymerization process can be carried out in the presence of a

polymerization medium (acting as a carrier medium for the components and as a heat transfer medium) or in the absence of such a medium (i.e. in bulk) (col. 4, lines 21-24).

Haddleton does not disclose that the composition does not contain transition metal complexes.

Rehmer discloses a process for producing readily filterable and deodorizable, highly concentrated, aqueous dispersions of pressure-sensitive adhesive, having readily reproducible properties, on the basis of copolymers of esters of acrylic and/or methacrylic acid, by emulsion polymerization in the presence of customary emulsifiers and free-radical polymerization initiators in accordance with the monomer emulsion feed polymerization technique, in which the monomer emulsion is run in a feed stream into the polymerization reactor, which comprises conducting the emulsion polymerization of a monomer mixture comprising (A) at least 50% by weight of the overall monomer amount of at least one ester of acrylic and/or methacrylic acid with alcohols of 1 to 18 C atoms and (B) other olefinically unsaturated monomers (col. 2, lines 22-37).

Therefore, it would have been obvious to one having ordinary skill in the art when the invention was made to employ emulsion polymerization in the presence of customary emulsifiers and free-radical polymerization initiators in accordance with the monomer emulsion feed polymerization technique as taught by Rehmer in order to obtain the polymer composition comprising methacrylic acid units and alkyl esters of methacrylic acid units with low molecular weight as taught by Haddleton, to avoid the using of transition metal chelate complex, and thus to arrive at the subject matter of claims 21 and 24.

With regard to the limitations of instant claims 21 and 24, the combined teaching of Haddleton and Rehmer does not disclose that pH-sensitive polymer brings about at least 60% haemolysis at pH 5.5, and less that 5% haemolyses at pH 7.4, at a concentration of 150 g/ml in a cytotoxicity test with human red blood cells.

Regarding the pH-sensitive polymer's limitations in view of substantially identical monomers, their weight ratio, initiators (peroxide, redox, azo compounds, such as 2,2'-azobis isobutyronitrile, etc.), emulsifier (sodium lauryl sulphate), process of aqueous emulsion polymerization producing such polymers and the same range of molecular weight (compare US'632, col. 12, line 7 through col. 17, line 18 and specification, page 14, line 15 through page 16, line 22) being used by Haddleton and Rehmer and the applicant, it is the examiner position to believe that the instantly claimed product , i.e. pH-sensitive polymer of Haddleton and Rehmer is substantially the same as pH-sensitive polymer recited in claims 21 and 24, even though obtained by a different process, consult ***In re Thorpe***, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Haddleton discloses that methacrylates include normal or branched alkyl esters of C1 to C12, especially C1 to C10, alcohols and methacrylic acid, (i.e. C1 to C12, especially C1-10, alkyl methacrylates) such as **methyl methacrylate, ethyl methacrylate, n-butyl methacrylate** and lauryl methacrylate. Acrylates include normal and branched alkyl esters of C1 to C12, especially C1 to C10, alcohols and acrylic acid, (i.e. C1-C12, especially C1-10, alkyl acrylates) such as **methyl acrylate, ethyl acrylate, n-butyl acrylate** and 2-ethylhexyl acrylate (col. 5, lines 53-67). There is a

mixture of MMA (mehyl methacrylate), BMA (butyl methacrylate) and MAA (methacrylic acid) used for the preparation of the copolymer in LMP 10 (low molecular weight polymer) (col. 16 line 65 through col. 17, line 13).

Furthermore, it is worth to mention again that instant claims 21 and 24 are the product claims and they recite a pH-sensitive polymer, but not a process for preparing a pH-sensitive polymer, therefore, it is the examiner position to believe that the instantly claimed product, i.e. pH-sensitive polymer of Haddleton and Rehmer is substantially the same as pH-sensitive polymer recited in claims 21 and 24, even though obtained by a different process, consult ***In re Thorpe***, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

7. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Haddleton et al. (U. S. Patent 5,804,632) in view of Rehmer et. Al (U. S. Patent 6,225,401) as applied to claims 21 and 24 above, and further in view of Kirk et al. (Kirk R, Othmer D, Encyclopedia of Chemical Technology, Vol. 1, pages 296 et seq., J. Wiley, New York, 1978).

The disclosure of Haddleton and Rehmer's references resided in § 6 is incorporated herein by reference.

With regard to the limitations of instant claim 22 and 23, Haddleton does not disclose that molecular weight regulator is dodecyl mercaptan and/or 2-ethylhexyl thioglycolate.

Rehmer discloses that in the polymerization reaction it is also possible to add regulators, which reduce the degree of polymerization of the resulting **emulsion**

polymers, for example, mercaptans, such as tert-**dodecyl mercaptan**, **ethylhexyl thioglycolate**, or 3-mercaptopropyltrimethoxysilane, etc. (col.3, lines 31-38).

With regard to the limitations of instant claim 22 and 23, the combined teaching of Haddleton and Rehmer does not discloses the claimed ranges of weights of dodecyl mercaptan and ethylhexyl thioglycolate in the monomer mixture.

Kirk et al. disclose that the molecular weights of the copolymers (CP) are adjusted by polymerizing the monomer mixture in the presence of molecular weight regulators, such as, in particular, of the mercaptans known for this purpose, such as, for example, n-butyl mercaptan, n-dodecyl mercaptan, 2-mercaptoethanol or 2-ethylhexyl thioglycolate, generally employing the molecular weight regulators in amounts of 0.05 to 15% by weight based on the monomer mixture, preferably in amounts of 0.1 to 10% by weight and particularly preferably in amounts of 2 to 12% by weight of the monomer mixture, which are within the claimed ranges (pages 296 et seq.).

Therefore, it would have been obvious to one having ordinary skill in the art when the invention was made to incorporate dodecyl mercaptan and/or 2-ethylhexyl thioglycolate as molecular weight regulators for emulsion polymers in the claimed ranges as taught by Kirk and Rehmer in Haddleton's polymer composition comprising methacrylic acid units and alkyl esters of methacrylic acid units in order to obtain the composition having low molecular weight, and thus to arrive at the subject matter of claims 22 and 23.

8. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Haddleton et al. (U. S. Patent 5,804,632) in view of Rehmer et. Al (U. S. Patent

6,225,401) as applied to claims 21 and 24 above and further in view of Lehmann et al. (U. S. Patent 5,730,999).

The disclosure of Haddleton and Rehmer's references resided in § 6 is incorporated herein by reference.

With regard to the limitations of instant claim 25, the combined teaching of Haddleton and Rehmer does not disclose the pH-sensitive polymer, which contains 50 wt% methacrylic acid units and 50 wt% ethyl acrylate units.

Lehmann exemplifies that a premix of drug and polymer is prepared from polymer powder made from **equal parts** of methacrylic acid and ethyl acrylate (Example 1, col. 5, lines 54-57).

Therefore, it would have been obvious to one having ordinary skill in the art when the invention was made to adjust the amounts of methacrylic acid and ethyl acrylate in the claimed range as taught by Lehmann in Haddleton and Rehmer's polymer composition comprising methacrylic acid units and alkyl esters of methacrylic acid units in order to obtain a dermal therapeutic system which exhibits a prolonged release of a drug (US'999, abstract), and thus to arrive at the subject matter of claim 25.

9. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable as obvious over Haddleton et al. (U. S. Patent 5,804,632) in view of Rehmer et. Al (U. S. Patent 6,225,401) as applied to claims 21-24 above and further in view of Lehmann et al. (U. S. Patent 5,644,011).

The disclosure of Haddleton and Rehmer's references resided in § 6 is incorporated herein by reference.

With regard to the limitations of instant claim 26, the combined teaching of Haddleton and Rehmer does not disclose the pH-sensitive polymer, which contains 30 wt% methacrylic acid units, 35 wt% ethylacrylate units, and 35 wt% methylacrylate units.

Lehmann exemplifies the composition comprising 30 wt% methacrylic acid, which is within claimed range, 50 wt% ethyl acrylate, and 20 wt% methyl acrylate (Example V2, col. 3, lines 20-25).

Therefore, it would have been obvious to one having ordinary skill in the art when the invention was made to adjust the amounts of ethyl acrylate and methyl acrylate in the claimed ranges as taught by Lehmann in Haddleton and Rehmer's polymer composition comprising methacrylic acid units and alkyl esters of methacrylic acid units in order to obtain coatings and binders for pharmaceutical forms, which are resistant to gastric juice (US'011, abstract, col. 2, lines 61-63), and thus to arrive at the subject matter of claim 26.

Furthermore, it is noted the following: "Applicants can rebut a *prima facie* case of obviousness based on overlapping ranges by showing the criticality of the claimed range. "The law is replete with cases in which the difference between the claimed invention and the prior art is some range or other variable within the claims. . . . In such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range." *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). See MPEP

§ 716.02 - § 716.02(g) for a discussion of criticality and unexpected results. MPEP 2144.05.

Response to Arguments

10. Applicant's arguments filed June 19, 2008 have been fully considered but they are not persuasive.

11. It appears that the focal Applicants argument resides in the contention that Haddleton and Rehmer do not disclose or suggest a polymer that "does not contain transition metal complexes" and which "brings about at least 60% haemolysis at pH 5.5, and less than 5% haemolysis at pH 7.4, at a concentration of 150 lsg/ml in a cytotoxicity test with human red blood cells" (page 9, the last paragraph). However, the Applicants have previously shown that this is not the case, since polymer S-100 does not have these properties (see page 29, Table 4 of the specification which shows that S-100 does not bring about at least 60% haemolysis at pH 5.5 (page 10, 1st paragraph, pages 10-11, the bridging paragraph).

12. It is noted that the polymer S-100 does not bring about at least 60% haemolysis at pH 5.5 because it does not satisfied all the claimed limitations of claims 1, 21 and 24; for example, it has molecular weight 100,000, which is twice much than the upper claimed limit for molecular weight. Thus, it is examiner's position that the polymer S-100 does not bring the claimed values of the properties due to high molecular weight, but not due to weight ratios of known monomers.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL M. BERNSHTEYN whose telephone number is (571)272-2411. The examiner can normally be reached on M-Th 8-6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael M. Bernshteyn/
Examiner, Art Unit 1796

/M. M. B./
Examiner, Art Unit 1796

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796